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# *Notes*

Vol. I

No. 4

## THE SQ-10 OR DOLLAR ENGINEERING

Although the intent of Nexus Notes is to provide technical assistance to users of operational amplifiers, we are deviating in this issue to describe the newest addition to the Nexus family. We feel justified in our choice of subject since we believe that the price of an operational amplifier is as important a consideration as any other specification.

The SQ-10 was specifically designed to fulfill the needs of the OEM market. The single unit price of \$24 (much less in quantity), makes it uneconomical for the equipment designer to develop "in house" amplifiers of equivalent performance. Nexus, however, has achieved this low cost through large volume purchasing and production. The usual level of Nexus quality and reliability is rigidly maintained.

While the SQ-10 does not match the performance of higher priced Nexus amplifiers, it is equal in performance to many competitive types costing twice as much or more. A condensed table of electrical characteristics is included for your convenience.

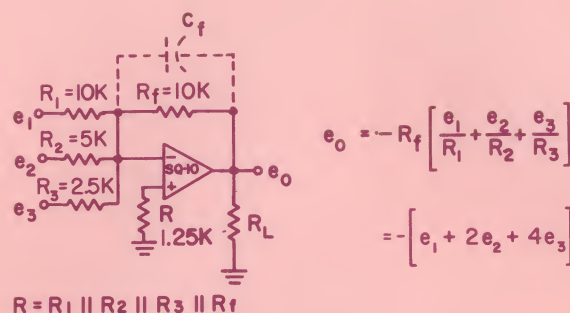
The applications shown are designed to yield accuracy of better than one per cent based on typical amplifier performance in the  $25^{\circ}\text{C} \pm 10^{\circ}\text{C}$  temperature range.

We hasten to add that only a few of the many uses for the SQ-10 have been indicated. Our Applications Engineering Department stands ready, as always, to offer assistance over the total spectrum of operational amplifier use.

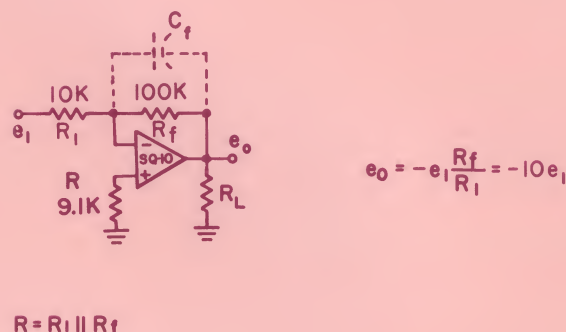
# Electrical Characteristics (Typical)

Supply Voltage:	±15 volts
Supply Current (@ full output):	±8 ma
Open-Loop Gain @ D. C.:	20K
Output Voltage Range:	±10 v @ 2 ma max.
I <sub>OS</sub> @ 25° C:	300 na
ΔI <sub>OS</sub> / ΔT (-5° C to +70° C):	2 na/° C
ΔE <sub>OS</sub> / ΔT (-5° C to +70° C):	20 μv/° C
f <sub>t</sub> :	1.5 mc
Input Z:	0.1 meg. diff.
f <sub>p</sub> :	20KC
Operating Temperature Range:	-25° C to +85° C
Case Size:	0.58" (h) x 1.12" (l) x 1.12" (w)

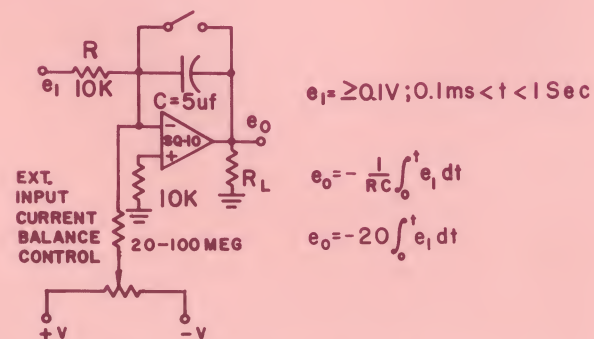
## ADDER



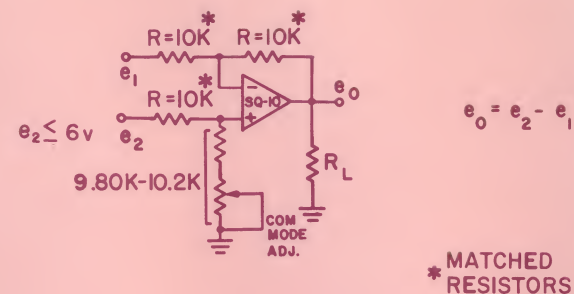
## INVERTING AMPLIFIER



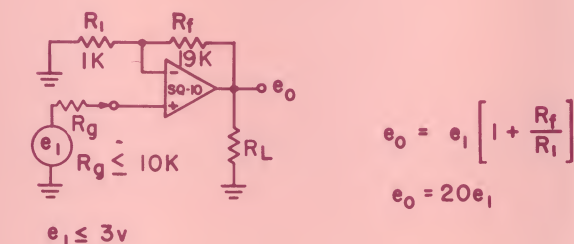
## INTEGRATOR



## SUBTRACTOR



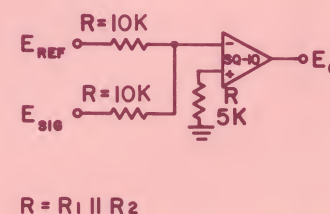
## NON-INVERTING AMPLIFIER



## NOTE:

When  $R_f = 0$  &  $R_1 = \infty$ :  $e_o = e_1$

## SIMPLEST VOLTAGE CROSSING DETECTOR



## R = R1 || R2

Rise time & fall time ~ 20μs